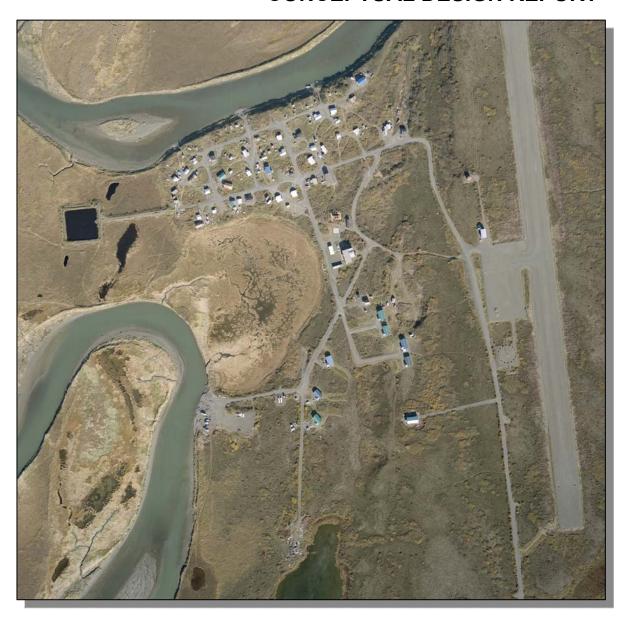


TRANSMITTAL LETTER

If enclosures are not as noted, please notify us at once.

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BY:	Egor Esipo	DV	0			

CONCEPTUAL DESIGN REPORT



TWIN HILLS BULK FUEL UPGRADES

February 27, 2009

Prepared by: Egor Esipov



EXECUTIVE SUMMARY

This report has been prepared for the Alaska Energy Authority (AEA) Rural Energy Group. The purpose of this report is to provide the basis for development of a new fuel system design, and to identify construction scheduling and costs related to upgrading the fuel systems in the community of Twin Hills, Alaska.

The participants in the proposed fuel system upgrades include:

- Twin Hills Village Council (THVC)
- Southwest Region Schools (SWRS)

As part of the development of this report a site investigation was performed on July 1, 2008. During this investigation potential tank farm sites were investigated, and the existing community and school fuel systems were inspected.

As a result of the findings of the community site investigation, and subsequent development of this Conceptual Design Report (CDR), locating the new bulk tanks within the confines of the property where the existing bulk tanks are located is preferred.

The proposed upgrades for the village of Twin Hills include construction of a completely new bulk fuel tank farm and new bulk fuel tank for the Water Treatment Plant. The existing bulk fuel tanks are well undersized and not economically feasible for refurbishment; therefore are not suitable for reuse. The community's new bulk fuel tanks will consist of two 25,000 gallon double-walled horizontal tanks which will continue to receive fuel by barge. The community's Water Treatment Plant will be upgraded with a new 1,200 gallon horizontal tank which will supply fuel to the new day tank within the plant.

The School is completely independent of the City, does not purchase fuel locally and produces its own power. The proposed fuel facility upgrade for the School will entirely replace the existing non-code compliant fuel storage. The existing fuel storage tanks are to be abandoned and replaced with a new 12,000 gallon horizontal tank and connected to the new barge offloading pipeline. In addition to the proposed upgrades, the School's Power Plant will be upgraded with a new day tank.

The Budget Cost Estimate is approximately \$895,000 and the cost per gallon of gross storage is \$14.16, based on a gross shell capacity of 63,200 gallons. The estimated budget cost includes facility design, construction administration, permitting, regulatory plans, construction costs, and a 15% estimating contingency.



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I. INTRODUCTION

The Alaska Energy Authority (AEA), Rural Energy Group is pursuing grant funds to upgrade rural bulk fuel tank farms. A total of 171 villages have been ranked in order of need, based on the condition of the tanks, piping, and liners. The following terms and conditions of the program will affect your village:

- Most of the funds are federal and provided through the Denali Commission. Other federal funding may be available from HUD (ICDBG) and the Environmental Protection Agency (EPA). Additional funds may be available from the State of Alaska, through the Department of Environmental Conservation and the Department of Education.
- In order to receive grant funds, each village must first produce an acceptable community plan for development. The Denali Commission defines a community's Community Plan as a road map for how the community wants to develop. A Community Plan should include current and historical information regarding the community as well as a plan for the future. A Community Plan is an umbrella document that is made complete by various infrastructure and program specific plans. Other plans that a community develops should fit into a larger comprehensive document or incorporate the items listed below into the current plan. For example, an Indian Housing Plan or CEDS Plan may be considered an acceptable plan if it speaks to the nine points listed below.
 - 1. Community vision (developed by community).
 - 2. Community goals and objectives (developed by community).
 - 3. Community involvement and process (community).
 - 4. Background for planning.
 - 5. Economy and Population summary.
 - 6. Land use summary.
 - 7. Community facilities and utilities summary.
 - 8. Transportation summary.
 - 9. Implementation of the plan.

Agency Coordination: In an effort to coordinate and begin using the same information for community document, the Denali Commission suggests that communities first check with state and federal agencies to review information that is collected on their community and to pull data from those agencies rather than pay someone else to gather it for them.

Possible Resources: The Denali Commission does not want to create additional hardship on communities as they strive to meet this planning requirement. They encourage communities to use existing plans and simply add in information that may be absent for that particular planning standard. Agencies can be a tremendous resource as can some regional organizations including housing authorities, health corporations, non-profits, boroughs, CDQs, ARDORs, and School Districts. Successful plans are locally developed and regionally supported.



- In order to receive grant funds, each village must demonstrate that the proposed facility will be sustainable with a Business Plan under Denali Commission policies. The business plan must describe who will own the facility, and how it will be operated and maintained. The plan will need to describe how the village will collect funds to pay for operations, maintenance, insurance, major repairs, and long term replacement. Typically a village may need to add a fuel surcharge of approximately \$0.20 to \$0.50 per gallon to cover these costs. A business plan will be prepared as part of this project for review and approval. The business plan must be signed prior to starting construction or procurement.
- The program will upgrade the existing community and school bulk fuel facilities, and community water treatment tank to be regulatory agency and code compliant. Current required regulatory plans are provided as part of the project.
- New upgrades are funded, designed, and constructed in three phases: Phase 1 -Conceptual Design; Phase 2 - Design Completion; and Phase 3 - Construction.
- During Phase 1 Conceptual Design, staff from AEA will visit a village, discuss the
 program, and work with residents and the local government to select a site for the new
 tank farm. The local government will be requested to decide if it wants this program, and
 to indicate that AEA should proceed with conceptual design by passing a formal
 resolution.
- At the completion of Phase 1 Conceptual Design, the village will be requested to review
 and approve the proposed location of the bulk tank farm and associated systems, and the
 number and volume of fuel tanks. The conceptual design must be formally approved by
 resolution.
- During Phase 2 Design Completion, the design for the new tank farms and other upgrades will be completed. An environmental assessment will be prepared and site control documented.
- Each village will be requested to provide "in kind" contributions by providing land for the new tank farm and free use of local heavy equipment. The grant funds pay for fuel, maintenance, and repairs during construction.
- Project may include local hire and construction trade training programs, subject to Denali Commission funding.

• Exclusions:

- Project does not provide funding for purchasing bulk fuel to fill new tanks
- Projects do not typically decommission existing tanks and pipelines.
- Project does not include remediation of contaminated soils.
- Project does not include purchase of lands.
- Project does not include purchase of rolling stock (i.e. fuel truck, tank truck, etc.).



This report has been prepared for the Alaska Energy Authority (AEA), Rural Energy Group to identify the design basis for the development of a new consolidated bulk fuel storage tank farm in the community of Twin Hills, Alaska.

This report includes a review of the existing bulk fuel systems in the community, an analysis of future fuel needs, a conceptual design for the replacement/upgrading of these facilities to meet these needs, a proposed project schedule, and a budget cost estimate for the project.

The participants in this project are as follows:

- Twin Hills Village Council
- Southwest Region Schools

A site inspection was conducted on July 1, 2008 by Bryan Carey of AEA, and Egor Esipov of LCMF LLC. The investigation included inspections of the existing fuel systems, new tank farm sites, and an open meeting which included Bryan Carey and representatives from the Twin Hills Village Council and other members of the community.

Subsequent data gathering was performed by Egor Esipov of LCMF LLC. Subconsultants used for this project are Rick Elliott for site control research and Duane Miller Associates for geotechnical investigations.

A. CONTACTS

1. Project Team

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2. Participants

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Fritz Sharp	Administrator	(907) 525-4821
Fax		(907) 525-4822



Southwest Region Schools: P.O.Box 170, Dillingham, AK 99576

Kim Endicott Maintenance Manager (907) 842-8234

Fax (907) 842-5634

3. Subconsultants

Rick Elliott Land Consultant: 1407 Kinnikinnick St., Anchorage, AK 99508

Rick Elliott Principal (907) 868-4043 Fax (907) 868-4043

Duane Miller Associates: 5821 Arctic Blvd, Anchorage, AK 99518

Richard Mitchells Principal Engineer (907) 644-3200

Fax (907) 644-0507

4. Additional Contacts

Additional information for this report was provided by the following people:

Mike Poston Delta Western Fuels (907) 276-2688

Crowley Maritime Corporation (907) 777-5505

B. APPLICABLE REGULATIONS, CODES AND POLICIES

1. State and Federal Regulations

The design and operation of fuel systems is subject to the following state and federal regulations:

- State of Alaska Fire and Life Safety Regulations (13 AAC 50)
- 2003 International Fire Code as adopted by 13 AAC 50
- 2004 Memorandum of Agreement #1 between AEA and State Fire Marshal
- 2003 International Building Code as adopted by 13 AAC 50
- EPA Oil Pollution Prevention Regulations (40 CFR Part 112)
- State of Alaska Oil and Hazardous Substances Pollution Control Regulations (18 AAC 75)
- Regulatory Commission of Alaska (RCA) Certification (3 AAC 42.05.221)
- U.S. Coast Guard Facilities Transferring Oil Hazardous Material in Bulk Regulations (33 CFR Part 154)

The current State of Alaska Fire and Life Safety Regulations adopted the 2003 editions of the International Fire Code (IFC) and the International Building Code (IBC). The code requirements of the IFC establish the primary design requirements for new facilities. In November 4, 2004, the State Fire Marshal, in order to adapt the IFC to state regulations,



entered into a Memorandum of Agreement with Alaska Energy Authority which incorporates modifications to IFC to allow for construction in rural Alaska.

The State of Alaska Oil and Hazardous Substances Pollution Control regulations (C-Plan) apply to fuel systems which have a storage capacity of more than 420,000 gallons per Owner or Operator. The proposed consolidated bulk tank farm is not subject to C-Plan regulations.

The U.S. Coast Guard Facilities Transferring Oil or Hazardous Material in Bulk regulations apply to fuel facilities that are capable of transferring fuel, in bulk, to or from a vessel with a capacity of 10,500 gallons or more. This regulation includes two separate plans: (1) Oil Spill Response Plan and (2) Operations Manual. The Oil Spill Response Plan is a spill response plan similar to the EPA's Facility Response Plan and it outlines spill planning requirements. The Operations Manual is a plan which addresses the procedures and equipment required for receiving fuel at the facility. The Coast Guard requires these two plans, and a Letter of Intent to Operate, to be submitted to the Captain of the Port for approval prior to delivery of fuel.

The U.S. Environmental Protection Agency (EPA) regulations include two regulatory plans for fuel facilities: (1) Spill Prevention Control and Countermeasures (SPCC) Plans and (2) Facility Response Plans (FRPs). The SPCC Plan identifies minimum fuel facility requirements for aboveground tanks which have an aggregate volume of more than 1,320 gallons. The FRP is a spill response plan for facilities which are filled by marine vessel and which have a storage capacity of more than 42,000 gallons.

II. EXISTING FUEL SYSTEMS

A. GENERAL OVERVIEW

Site investigation included an inspection of the following tank farms:

- THVC Tank Farm
- SWRS Tank Farm
- Water Treatment Plant (WTP) Tank

Site investigation also included inspection of the Power Plant operated by SWRS.

The existing community fuel storage tanks are located on the south end of the community about 400 feet east of the boat ramp. The SWRS tank farm is located approximately in the center of the community about 100 feet north of the School. Fuel oil is received via barge deliveries once a year. The barge pumps fuel directly into both fuel tank farms' storage tanks. The Twin Hills community experiences fuel shortages annually, and relies heavily on either purchasing additional fuel oil from the School District or from the nearby City of Togiak.



B. EXISTING FACILITIES LAYOUT

1. THVC Tank Farm

The Twin Hills bulk fuel tank farm consists of two 10,000 gallon single-wall horizontal storage tanks on skids. The tanks sit on an elevated gravel pad with no security fence or lighting. The tanks do not have containment, emergency venting, overfill protection or level alarms. No UL label was present on these tanks and the lack of emergency vents indicated they were probably were not fabricated by a UL certified shop. A shack, located adjacent to the tank farm, is used to dispense fuel oil by using a 2" soft hose and electric transfer pump. Electric power is provided by either a small generator located inside a small box next to the dispensing shack or an extension cord that runs from +/- 200 feet away from private residence. The Twin Hills community fills a mobile 500 gallon tank with the dispenser at the tank farm, which is used to fuel the village's power plant tank and other 300 to 500 gallon heating oil storage tanks at community buildings and residences.

2. SWRS Tank Farm and Power Plant

The School has its own power plant and bulk fuel tank farm of five 9,000 gallon vertical storage tanks. The farm has secondary containment that consists of earthen dike walls with a membrane liner. It has security fencing with no lighting. The tanks are BIA style and generally non-code compliant.

The power plant is located approximately 25 feet east of the fuel tank farm. The plant has a 78 kW and a 40 kW generators. The generators are supplied with fuel oil by a 300 gallon day tank located inside the plant. The day tank draws fuel oil from the tank farm by an electric transfer pump located underneath the day tank. Buried steel piping connects the day tank to the school's fuel tank farm.

An abandoned 550 gallon double-wall skid mounted tank with dispenser is sitting just outside north of the power plant.

3. WTP Fuel Tank

The village operates a small tank farm for storage of heating fuel for the Water Treatment Plant. The facility consists of one BIA style 7,500 gallon vertical tank and a 300 gallon horizontal day tank, both located within a concrete dike. The dike has capacity of only +/- 5,400 gallons and it is not known if it is liquid tight. These tanks are not code compliant.



C. EXISTING TANK STORAGE CAPACITY SUMMARY

The following table lists the existing total tank shell capacity for Fuel storage tanks in the community. Tank capacities have estimated where data from the facility operator was not available.

Existing Fuel Storage Shell Capacity (Gross Shell Capacity = 18,000 gallons)

Facility	Owner	Diesel (gallons)
Fuel Farm	Village Council	20,000
Water Treatment Plant	Village Council	7,500
Fuel Farm	School	45,000
Total		72,500

D. CURRENT FUEL USE

Village fuel consumption data was received from the Twin Hills Village Council, Southwest Region Schools, Delta Western Fuels and Crowley Maritime Corporation. According to the Twin Hills Village Council president John Sharp, the community annually consumes all of the available stored fuel of 27,500 gallons and acquires an additional 10,000 to 15,000 gallons of fuel from Southwest Region Schools and/or the nearby community of Togiak. The total consumption of fuel by the community of Twin Hills per year is approximately 42,500 gallons.

Both the Southwest Region Schools and Delta Western Fuels indicated that the School purchases around 15,000 gallons of fuel per year out of which it consumes only up to 5,000 gallons and the remainder of the fuel has always been obtained by the community.

III. PROJECTED FUTURE FUEL USE

The community of Twin Hills currently receives fuel via barge once a year. Crowley Maritime Corporation delivers and fills the community's fuel tank farms as well as the water treatment plant fuel tank. Delta Western Fuels fills up the School tank farm.

1. Population Growth

Alaska Department of Labor population data for the village of Twin Hills shows a relatively constant population since 1990 with some increase. The table below shows the increase in population for the last fifteen years to be about 11.1% or 0.75% per year. See Appendix A – Population Data.



Village of Twin Hills Population Data (Source: Dept of Labor, 1900 to 2007)

Twin Hills Population Data					
Year Population		% Growth	% Growth		
		Yearly	(15-Year)		
1990	66				
1991	72	8.3%			
1992	66	-9.1%			
1993	70	5.7%			
1994	74	5.4%			
1995	76	2.6%			
1996	67	-13.4%			
1997	61	-9.8%			
1998	79	22.8%			
1999	76	-3.9%			
2000	69	-10.1%			
2001	64	-7.8%			
2002	77	16.9%			
2003	76	-1.3%			
2004	68	-11.8%			
2005	71	4.2%			
2006	77	7.8%			
2007	81	4.9%	11.1%		

2. Storage Shortfall/Rationing

The Village Council president, John Sharp, has noted that the community has been forced to ration fuel consumption. The Twin Hills community annually experiences fuel shortages and heavily relies on either purchasing additional fuel oil from the School District or from nearby City of Togiak.

3. New Sources of Demand

Sources of increased fuel demand, such as construction activities, new homes, new infrastructure or upgrades to existing infrastructure will all have potential



impacts on fuel demand and consumption. The following factors have been considered when sizing fuel storage capacities:

- Increase in Population.
- Future Housing Projects.

No large future housing projects are anticipated. As such, no step increase in fuel consumption will be added, just normal increase due to population growth.

4. Alternative Sources of Energy

Waste Heat Recovery

A waste heat recovery system is incorporated into the existing School power plant generators, and heat recovery from the power plant is used for the School and school housing.

Wind Energy

According to the U.S. Department of Energy, Wind Energy Resource Atlas, Twin Hills has little resource for wind energy potential. The Alaska High Resolution wind map, as provided by AEA, shows a Class 1-3 wind resource. Discussion with AEA verified that wind energy is not a likely energy source for Twin Hills.

Hydroelectric

Research for this report did not find any hydroelectric plants operating on the Togiak River, or data relating to the feasibility of generating hydroelectric power on the river. Twin Hills has no conventional storage or run-of-river hydroelectric resource potential.

• Geothermal Energy

Based on review of the 2003 U.S. Department of Energy map of Alaska Geothermal Resources, no geothermal energy sources are available.

• Energy Efficiency Improvements

No End Use Recommendation Assessment is available for the community of Twin Hills. Potential upgrades would include upgrades to lighting, heating systems, and building insulation. Energy conservation impacts from these types of upgrades would not be substantial enough to incorporate into projected fuel consumption.



Tie-Line to Togiak

The community of Togiak is located approximately 4 miles west of Twin Hills. Togiak's electrical power facilities are owned and operated by AVEC electrical utility. As a possible alternative to producing diesel power within Twin Hills, a tie-line would connect Twin Hills' existing distribution system to AVEC's utility in Togiak.

There are no known inspection reports for determining possible routing, estimated construction or design costs for this alternative. The scope of this report does not include further analysis of this alternative.

5. Fuel Storage Requirements

The new bulk fuel storage facility will be designed to receive fuel from either barge or aircraft. Fuel delivered by barge will be much less expensive; therefore new bulk fuel storage facility will have a capacity sufficient for the annual fuel consumption of the community. In addition, 13 months of storage are recommended in case the barge does not deliver fuel at the same time each year. Fuel consumption will be assumed to increase at a rate approximately equal to the annual increase in population, or 0.75% per year. The current annual consumption will be taken as last year's consumption, 2007. Denali Commission policy required that bulk tank farms be sized initially to accommodate 10 years of fuel growth.

Projected Future Fuel Consumption

Year	(gallons	
2007	42,500	
2017	46,000	

IV. PROPOSED NEW FACILITIES

Replacement of the existing bulk fuel systems was proposed. The renewed facilities would be code compliant facilities. No components at the existing facilities are suitable for reuse. The new facilities will consist of tanks, piping, and security fence.

A. SITE SELECTION

1. THVC Tank Farm

The proposed location of the new THVC tank farm is at its current location. The existing pad will be reused as well as extended to the west to accommodate larger tanks, new spill response conex and new fabricated steel bulk containment. This



location will allow barge delivery similar to the existing configuration. The new THVC tank farm will be fenced for security reasons. See Appendix C, Sheet Fig-1 for Project Layout Plan and Sheet C-1 for City Tank Farm Site Plan.

2. SWRS Tank Farm

The proposed site for the SWRS new fuel tank is just north of the School power plant. The new tank will be fenced for security and safety reasons. The fuel delivery for School tank will be via new barge offloading pipeline from new marine header. The new marine header will be directly across the road from the proposed City tank farm and the marine pipeline routing will be along the north side of the community road. See Appendix C, Sheet Fig-1 for Project Layout Plan and Sheet C-2 for School Tank Farm Site Plan. The 300-gallon day tank inside the School power plant is in violation of EPA due to lack of an adequate secondary containment and needs to be replaced. Replacement of a single-wall day tank with a 150 gallon packaged double-wall day tank is more cost effective than refurbishing and building a secondary containment.

3. Water Treatment Plant Tank/ Washeteria

The site for the Water Treatment Plant new fuel tank is located next to the Water Treatment Plant. The new tank will be fenced for security and safety reasons. In addition to proposed design, a new 50 gallon packaged day tank is to be constructed inside the Water Treatment Plant. See Appendix C, Sheet Fig-1 for Project Layout Plan and Sheet C-3 for Water Treatment Plant Site Plan.

B. SITE CONTROL

Site control opinion will be obtained from Rick Elliot, Land Consultant. See Appendix F – Site Control.

The proposed Twin Hills fuel tank farm and school marine header and at least a portion of the pipeline appear to be on land owned by the Village of Twin Hills. A portion of the pipeline, depending on actual location, could be within the right-of-way for the Twin Hills Road. The School tank is located on land owned by the SWRS. Long term lease will be required between THVC and the SWRS for the new offloading pipeline.

The proposed fuel tank for the washeteria/water treatment plant may be located on Lot 9 or Lot 10, Block 2, USS 5580. Lot 9 appears, from available records, to be privately owned even though the washeteria/water treatment plant is located on this lot. Lot 10 is apparently still owned by the Village according to recorded documents that are available. It is possible the Village has transferred the property or at least given permission for residential occupancy. This is based on the observation that the community profile map depicts a residential structure on Lot 10.



PROJECT LAYOUT PLAN

C. SOIL CONDITIONS

Duane Miller Associates conducted a series of test pits in the village 'proper' in 1999 for a water & sewer system. No evidence of permafrost was discovered. The soils in most of the village sites consist of 2 to 4 feet deep of organic overburden underlain with sands and gravels which is suitable for the tank farm foundations. Imported fill material will be supplied from a local borrow source, the subsurface rights of which belong to Bristol Bay Native Corporation.

D. COMMUNITY FLOOD DATA

According to the Village Council President, John Sharp, the Togiak River floods annually the floodplain area adjacent to the village. See Appendix C, Sheet Fig-1. From the site inspection conducted on July 1, it was determined that the floodplain area is approximately 8 to 10 feet below community road.

The U.S. Army Corps of Engineers – Flood Plain Management Services ALASKAN COMMUNITIES FLOOD HAZARD DATA 2007 publication states "There is no detailed flood elevation study". See Appendix B – Flood Hazard Data.

E. LOCAL FILL MATERIAL

Local fill material is available at a pit located about a mile south of the airport runway. The Bristol Bay Native Corporation has confirmed its subsurface rights to the borrow pit and stated the material costs \$3 per cubic yard.

F. TANK FARM FOUNDATION

The selected sites are covered with 2 to 4 feet of organic materials underlain with sandy gravel which is suitable for the tank farm foundation. Brush, small trees and the thin layer of organic material will need to be removed. The site will then need to be leveled, compacted and graded to the proper elevation prior to constructing the bulk tank farm.

G. SECONDARY CONTAINMENT

Double-wall tanks will be provided for the City and School to satisfy secondary containment requirements. Secondary tanks will have manual inspection ports to verify the integrity of the primary tank.

H. TANKS

All existing tanks at the SWRS tank farm and Water Treatment Plant are BIA stackable style with bolted tops, non-Code compliant and not suitable for reuse. The existing two horizontal bulk tanks at the THVC tank farm are in fair to good condition, and if



retrofitted with proper appurtenances and placed within adequate diking, then the installation would be code-Compliant although no UL labels are present on the existing tanks. These existing tanks only have half required capacity for THVC and cannot be made code compliant cost effectively, particularly when compared to installing fewer larger new tanks. Fuel in existing tanks will be transferred to new tanks, and existing tanks will be relocated to a site designated by the Owner. Currently this project does not include disposal although funds may be available through the Denali Commission or the Department of Environmental Conservation.

1. THVC Tank Farm and Water Treatment Plant Tank

The proposed THVC tank farm has been designed around installing two new 25,000 gallon double-wall horizontal bulk storage tanks on skids. New tanks will be 11 feet diameter by 34 feet long shop fabricated and coated UL 142 tanks. The power line will be extended to the tank facility site.

The tanks have a net usable storage capacity of roughly 22,500 gallons. The net storage capacity is determined at 90% of the tank's gross shell capacity. The net capacity of a tank allows for the portion of the tank which is not used during normal operations, including ullage left at the top of the tank for thermal expansion and the amount of fuel below the issue nozzle which cannot be withdrawn through the fixed pumping system.

In addition to the THVC bulk storage tanks the proposed design includes a new 1,200 gallon protected double-wall tank at the Water Treatment Plant. A protected tank typically consists of a double walled tank with the annulus filled with a light weight concrete to provide 2-hour fire rating and meet specific location requirement. The net usable capacity for the tank is factored at 90% of the gross shell capacity.

2. SWRS Tank Farm

The proposed SWRS tank farm has been designed around installing one new 12,000 gallon double-wall horizontal bulk storage tank on skids. The net storage capacity is determined at 90% of the tank's gross shell capacity.

A summary of the proposed fuel storage capacities (as shown in the Conceptual Design Drawings), is as follows:



Total:

63,200

56,880

Entity		apacity lons)	Description	Location	
	Total	Usable			
THVC	25,000	22,500	Bulk	Village Tank Farm	
	25,000	22,500	Bulk	Village Tank Farm	
	1,200	1,080	Bulk	Water Treatment Plant	
SWRS	12,000	10,800	Bulk	School Tank Farm	

Proposed Tanks

Proposed Capacity Comparison: The proposed gross bulk fuel storage capacity is 23,700 gallons greater than the existing community storage tank shell capacity. The communities' current fuel storage capacity is undersized for consumption today, and does not include any allowance for future growth. The proposed School gross bulk fuel storage capacity is 33,000 gallons less than the present storage tank shell capacity. The School existing bulk fuel storage capacity is well oversized. The proposed fuel storage capacity for SWRS is more than twice the size of current fuel consumption. The new facilities will be designed and properly sized to reduce operation and maintenance costs, and improve environmental and life safety. The proposed bulk storage facilities are sized to meet future fuel consumption in 10 years, or the year 2017.

Entity	Existing Shell Capacity (gallons)	Proposed Design Shell Capacity (gallons)	Increase or Decrease (gallons)	Change (%)
THVC	27,500	51,200	23,700	+86%
SWSR	45,000	12,000	-33,000	-73%

I. FUEL DISTRIBUTION

1. THVC Tank Farm/ Water Treatment Plant

Fuel will be delivered to the new bulk tank farms by barge as fuel is currently received. Tanks will be provided with a common receipt and issue pipe and will branch to bulk transfer pump. Branch connections will be provided on receipt/issue piping for truck fill or offloading.

New bulk transfer station will be provided to continue utilizing the existing mobile 500 gallon tank for delivering fuel for community power plant and other 300 to 500 gallon heating oil storage tanks at community buildings and residences. The bulk transfer station will include a new fabricate steel bulk



loading containment, new transfer pump enclosure, a fixed pump and a meter. The meter will include an automatic shut-off valve, which closes once a predermined quantity of fuel is pumped.

A new 50 gallon day tank within the Water Treatment Plant will automatically draw fuel via new 1-inch line from the new bulk tank to supply boilers inside the plant.

2. SWRS Tank Farm/ Power Plant

A new barge offloading pipeline and new marine header is recommended for the new SWRS bulk fuel tank, and has been shown in Appendix C, Sheet Fig-1, Project Layout Plan. The new barge offloading pipeline will consist of one 3 inch approximately 1,250 feet long above grade line and will be constructed of Schedule 80 welded steel pipe with suitable low temperature properties. Marine header will be terminated above the known high flood elevation. Marine header will include a 42 gallon drip box with drain plug.

Fuel will be distributed through a new 1" pipeline to a new 150 gallon day tank inside the Power Plant. Fuel will be drawn from the day tank to supply boilers and generators inside the powerhouse.

J. OWNERSHIP AND OPERATION

The proposed community tank farm and water treatment storage tank will be owned and operated by the Village Council. The new fuel storage tank at the School will be owned and operated by the Southwest Region School District. The business plan will define ownership, operation and maintenance of the entire bulk storage system. See discussion on ownership of the facilities in the Introduction of this document.

K. SPILL RESPONSE REGULATORY PLANS

The Village Council and Southwest Region School District will be responsible for the overall condition of its tank farms. Since the THVC fuel facility will be more than 42,000 gallon capacities, an EPA Facility Response Plan will be required. The SWRS tank will be well under 42,000 gallons and therefore will not need an EPA Facility Response Plan.

The fuel facilities will not have more than 420,000 gallons of storage capacity within the tank farm; therefore a State of Alaska Oil Discharge Prevention and Contingency Plan (C-Plan) will not be required.



Compliant regulatory plans will be provided to participants as part of this project. Regulatory Plan Implementation Schedule:

- The EPA SPCC Plan must be in place within six months of facility start-up;
- The U.S. Coast Guard Operations Manual must be submitted, and approved, with a Letter of Intent to Operate, prior to receiving fuel.

L. PERMITTING

Permitting requirements for a new tank farm and fuel distribution systems include submittal of construction documents to the State Fire Marshal and an environmental assessment

1. Fire Marshal Review

The construction of the new tank farm and fuel distribution systems will require submittal of a complete set of construction documents to the State of Alaska, Department of Public Safety, Division of Fire Prevention (State Fire Marshal) for plan review and approval. Typical review periods range from 4 to 6 weeks. Fire Marshal review fees are based on total project cost, and are included in the budget cost estimates.

2. Environmental Assessment

As part of the Phase 2 Design portion of the project, an Environmental Assessment will be completed. The environmental assessment will include approvals from:

- Department of Environmental Conservation
- Department of Natural Resources
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- U.S. Environmental Protection Agency
- Federal Aviation Administration
- Federal Energy Regulatory Commission

Since all land for this project has been previously developed, any impact on the project as a result of the environmental assessment is anticipated to be minimal.

M. CONSTRUCTION METHOD

Construction of the new fuel facilities will be conducted using Force Account methods. Contractors are preselected and act as Construction Managers. This construction method has traditionally produced cost effective results, fast construction schedules, and increased local hire.



When working on a Force Account basis the project typically hires a qualified superintendent and local labor where available. Additional personnel may need to be brought in to supplement the local labor force for specialty trades, such as pipe welding and electrical installation.

Traditionally, Force Account projects have enlisted the use of participants' local equipment where available, as an in-kind contribution from the community. Provisions are made for equipment maintenance, to repair equipment damaged while constructing the fuel facility, and to leave equipment in as good of condition as before construction.

1. Local Labor

The Village Council of Twin Hills maintains a list of skilled and available labor in the community.

2. Local Equipment

The Twin Hills Village Council owns the following heavy construction equipment available in the community:

455D John Deere bulldozer – fair condition.

410D John Deere rubber tired backhoe – good condition.

44G John Deere loader – excellent condition.

570A John Deere road grader – excellent condition.

N. SCHEDULE

A construction schedule has been prepared based on historical force account fuel project construction methods and crew sizes.

Construction Schedule

Activity	<u>Date</u>
Design and Permitting	Summer 2009
Request Funding	Summer 2009
Procurement	Fall – Winter 2009
Mobilization/Material Delivery	Spring 2010
Begin Construction	July 2010
Demobilization	September 2010

Note: The proposed schedule is dependent upon many inter-related factors such as project funding, project start time, material availability, and weather. If any of these items creates a delay, the above schedule could change.



O. BUDGET COST ESTIMATE

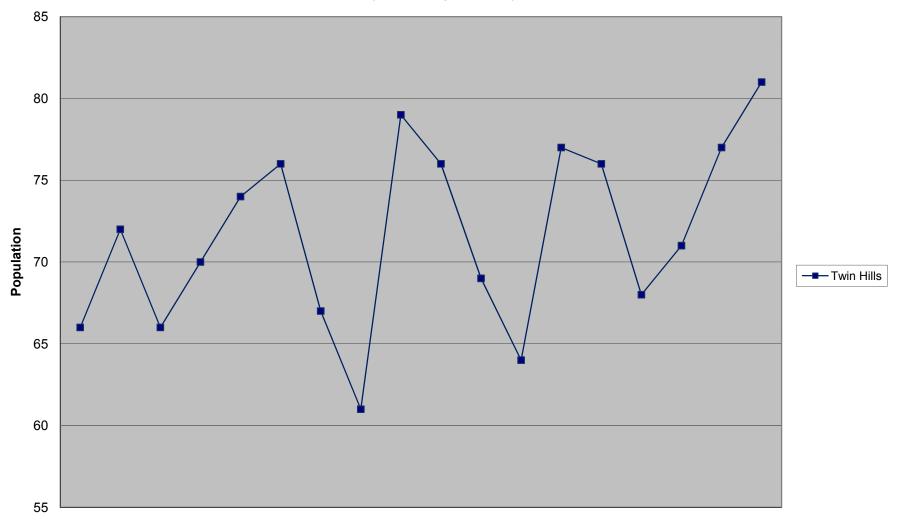
A Budget Cost Estimate has been prepared for construction of the bulk fuel upgrade project, see Appendix D. The estimate was developed based on historical Force Account construction costs for recent tank farm projects in Rural Alaska. Equipment rental rates are based on historical rental rates for similar equipment. These estimated budget costs include facility design, construction administration, permitting, regulatory plans, construction costs, and a 15% estimating contingency.

Cost Variance						
	Denali					
	Design		Commission	Benchmark		
Project Cost	Gross Shell	Project Cost	Benchmark	Variance	Variance	
(Total \$)	Capacity (Gal)	(\$/Gal)	Range (\$/Gal)	(\$/Gal)	(%)	
			\$12.00 to			
\$894,931	63,200	\$14.16	\$14.00	\$0.16	1%	

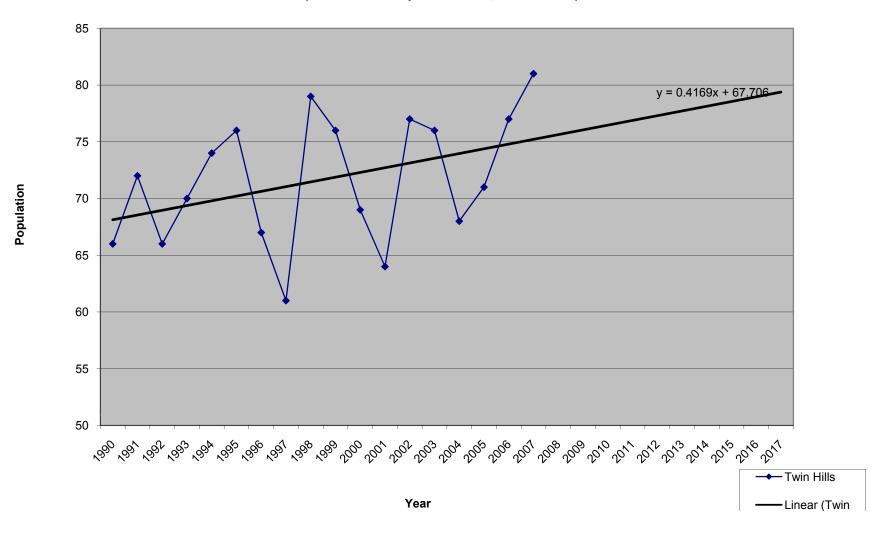


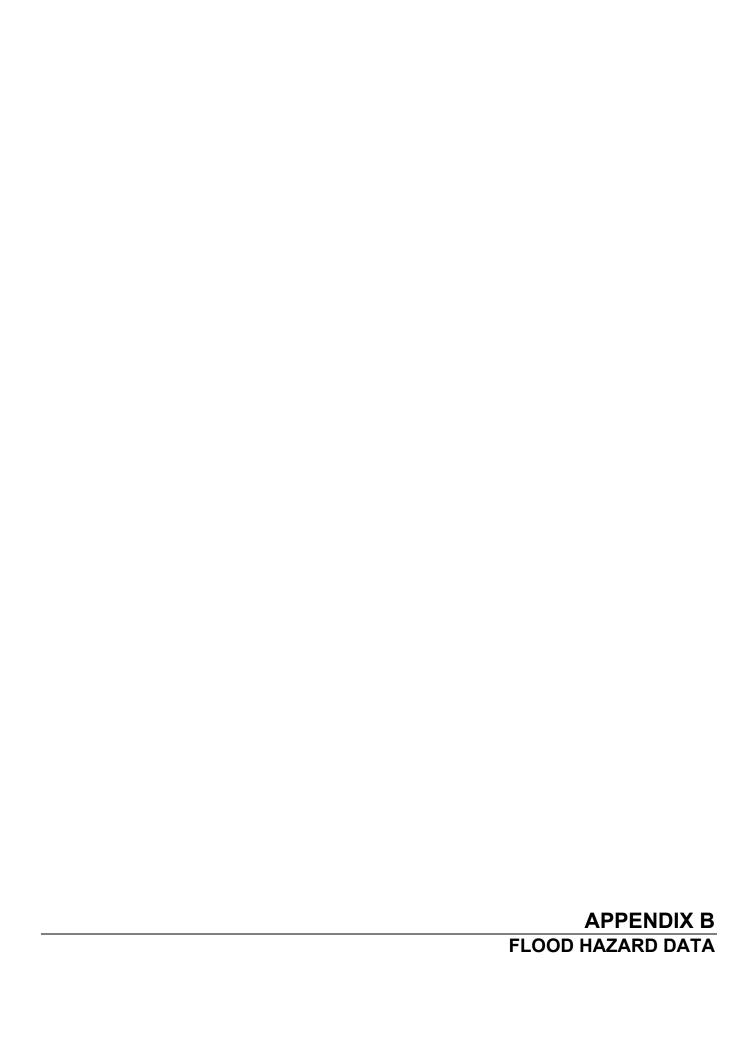


Twin Hills Population History (Source: Dept of Labor)



Twin Hills Population Projection (Source: DOL Population Data, 2000 to 2007)





Twin Hills | Council Office: (907) 525-4821 | Revised:

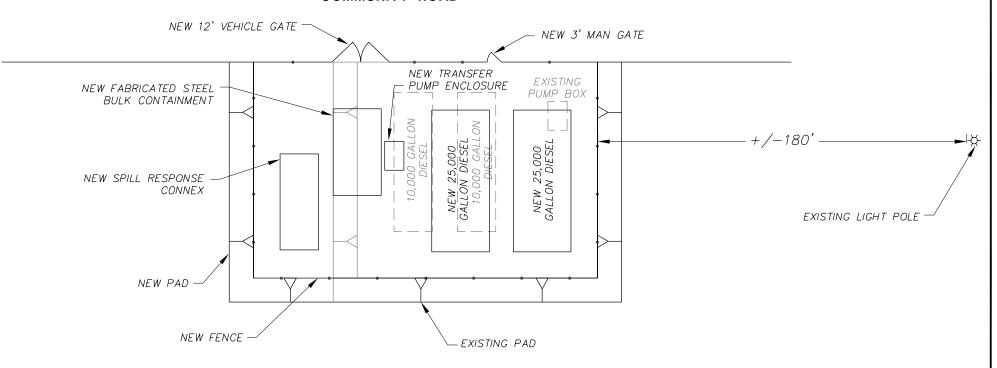
STATUS POPULATION BUILDINGS	unincorporated 76	LAST FLOOD EVENT FLOOD CAUSE ELEVATION	
RIVER SYSTEM COASTAL AREA	Togiak River Togiak Bay	FLOOD OF RECORD FLOOD CAUSE ELEVATION	
NFIP STATUS FLOODPLAIN REPORT FLOOD INSURANCE STUDY	not participating yes no	WORST FLOOD EVENT FLOOD CAUSE FLOOD GAUGE	no

Comments: No known flooding.

Floodplain Manager (907) 753-2610









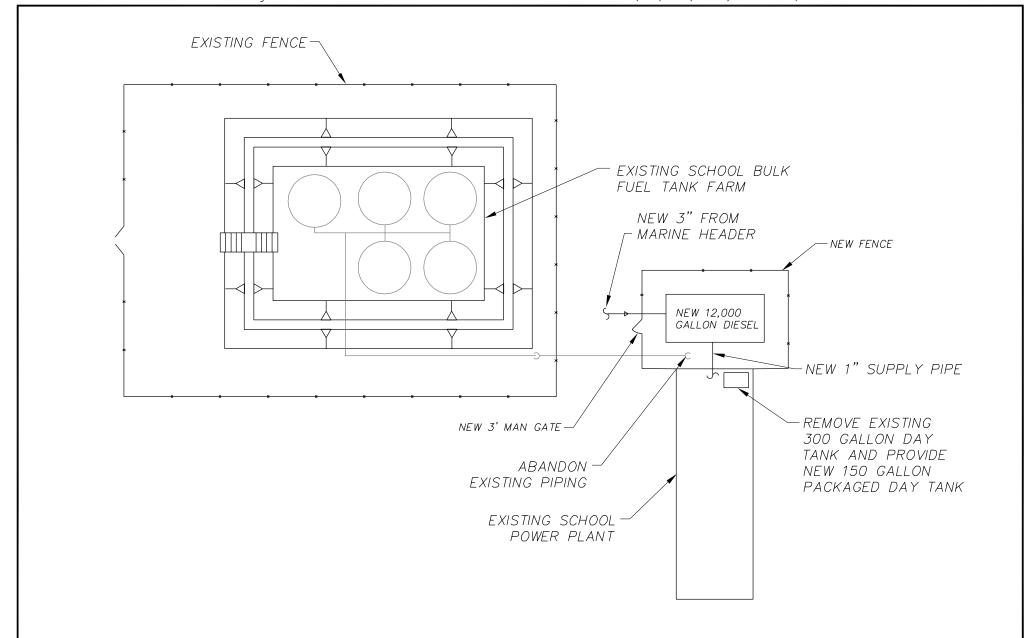
BULK FUEL UPGRADE THVC TANK FARM SITE PLAN

TWIN HILLS, ALASKA

DATE:	02-27-09	DRAWN BY:	EE	SHEET:	C-1
SCALE:	1"=20'	CHECKED BY:	GMO	W.O. No:	08-401









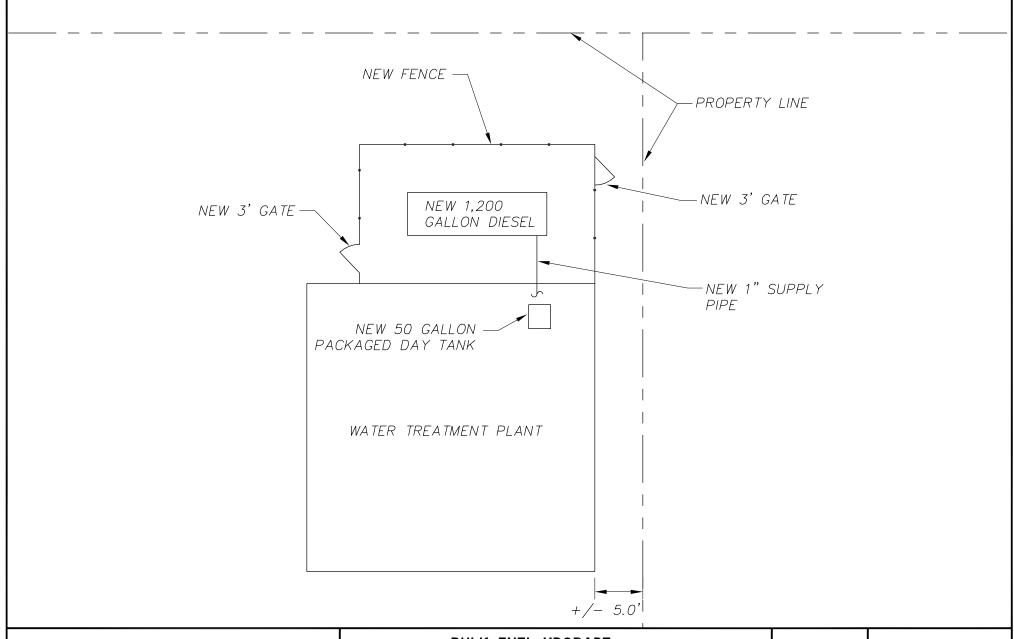
BULK FUEL UPGRADE SWRS TANK FARM SITE PLAN

TWIN HILLS, ALASKA

DATE:	02-27-09	DRAWN BY:	EE	SHEET:	C-2
SCALE:	1"=20'	CHECKED BY:	GMO	W.O. No:	08-401









BULK FUEL UPGRADE WATER TREATMENT PLANT TANK SITE PLAN

TWIN HILLS, ALASKA

DATE:	02-27-09	DRAWN BY:	EE	SHEET:	C-3
SCALE:	1"=10'	CHECKED BY:	GMO	W.O. No:	08-401







BUDGET COST ESTIMATE Alaska Energy Authority Twin Hills Bulk Fuel Upgrade

PROJECT: Twin Hills Bulk Fuel Upgrade CDR BY: EE

PROJECT No.: 08-401 FILE NAME: Twin Hills BFU CDR budget cost est.xls

LEVEL: Budget DATE: 02/27/09

REFERENCE DRAWING(S): Conceptual Drawings

BASIS: Force Account FREIGHT RATE: \$0.50/lb **

COST SUMMARY

Project Total: 894,931

\$/gallon: \$14.16

				MATERIAL*		LABOR ***			OTHER		
							UNIT		OR		
				UNIT	MATL	MAN	COST	LABOR	EQUIP		
No.	ITEM	QTY	UNITS	COST	TOTAL	DAYS		TOTAL	RENT	FREIGHT	TOTAL

Estimated Project Duration 42 DAYS

Miscellaneous							
1	Foreman	1	MD's	42	800	33,600	33,600
2	Carpenters/Welders	2	MD's	64	600	38,400	38,400
3	Local Labor	3	MD's	126	500	63.000	63,000

Mise	fiscellaneous								
4	Mob/DeMob	1	SUM	10,000	10,000		10,000		
5	Crew Per Diem	126	MD's	42	5,292		5,292		
6	Crew Housing	126	MD's	50	6,300		6,300		
7	Backhoe Allowance	1	MO	3,000		3,000	3,000		
8	Dump Truck Allowance	1	MO	3,000		3,000	3,000		
9	Bulldozer Allowance	1	MO	3,000		3,000	3,000		
10	Vibratory Compactor	1	MO	2,000		2,000 1,500	3,500		
11	Crew Truck	1	MO	2,000		2,000	2,000		
12	Loader Allowance	1	MO	1,000		1,000 2,000	3,000		
13	Welder Rental	1	MO	3,000		3,000 800	3,800		
14	Fuel	1	SUM	5,000	5,000		5,000		
15	Tool Rental	1	MO	5,000		5,000	5,000		
16	Consumables	1	SUM	5,000	5,000	2,500	7,500		

BUDGET COST ESTIMATE Alaska Energy Authority Twin Hills Bulk Fuel Upgrade

				MATERIAL	[*	LABOR	***		OTHER		
							UNIT		OR		
				UNIT	MATL	MAN	COST	LABOR	EQUIP		
No.	ITEM	QTY	UNITS	COST	TOTAL	DAYS		TOTAL	RENT	FREIGHT	TOTAL
	n Hills Village Council									Ī	1 275
	Cravel Fill/Surface Core (Baselta)	150			450						1,275 450
	Gravel Fill/Surface Cors (Royalty) Woven Geotextile	3,000		3.00 0.20	600					225	825
	C Bulk Tanks			0.20	000					223	313,793
19	25.000 Gal Tanks	2		112,500	225,000					50.000	275,000
20	6x6 Tank Support Timbers	300		2.25	675					1,650	2,325
21	Whistle Vent	2		1,200	2,400					100	2,500
	High Level Valve	2		850	1,700					60	1,760
	Emergency Vent	2	EA	250	500					75	575
24	Gauging Hatch	2	EA	100	200					50	250
25	Water Draw Barrel Pump	1	EA	300	300					63	363
26	Overfill Prevention Containment	2	EA	100	200					50	250
27	Pump Box	1	EA	3,500	3,500					750	4,250
28	Vertical Turbine Pump	2	EA	1,200	2,400					500	2,900
29	Anti-Siphon Valve	2	EA	75	150					50	200
30	Flex Fittings	3	EA	125	375					38	413
31	2" Valve	4	EA	200	800					220	1,020
32	Low Level Switch	2	EA	600	1,200					50	1,250
33	Meter	1	EA	800	800					63	863
34	Hose Reel/ Nozzle	1	EA	600	600					125	725
35	Bulk Loading Containment	1	LS	13,600	13,600					4,500	18,100
	2" Piping	100		10	1,000					50	1,050
	er Treatment Tank										19,649
	1,200 Gal Tank	1		8,100	8,100					1,200	9,300
38	6x6 Tank Support Timbers	25		2.25	56					138	194
39	Whistle Vent	1		1,200	1,200					50	1,250
40	High Level Valve	1	EA	850	850					30	880
41	Emergency Vent	1	EA	250	250					38	288
	Gauging Hatch	1	EA EA	100	100					25 63	125
43 44	Water Draw Barrel Pump Overfill Prevention Containment	1		300 100	300 100					25	363 125
	1" Piping	20		5.00	100					25	125
	Day Tank	1		7,000	7.000					23	7,000
	rity Fencing	_		7,000	7,000					Γ	7,513
	Fencing	375		10	3,750			• • • • • • • • • • • • • • • • • • • •		2,813	6,563
48	Pedestrian Gate	4		100	400					200	600
	Truck Gate	1		350	350					200	350
	trical										20,500
50	Power Extension	1	SUM	2,000	2,000	4	500	2,000		500	4,500
	Lighting	1	SUM	5,000	5,000	8	500	4,000		500	9,500
52	Control Panel	1	SUM	5,000	5,000	2	500	1,000		500	6,500

BUDGET COST ESTIMATE Alaska Energy Authority Twin Hills Bulk Fuel Upgrade

				MATERIAL	L*	LABOR	***		OTHER		
							UNIT		OR		
				UNIT	MATL	MAN	COST	LABOR	EQUIP		
No.	ITEM	QTY	UNITS	COST	TOTAL	DAYS		TOTAL	RENT	FREIGHT	TOTAL
-	•			•		•					
Sout	hwest Region Schools										
SWI	RS Tank Farm										80,543
53	12,000 Gal Tank	1	EA	54,000	54,000					12000	66,000
54	6x6 Tank Support Timbers	50	LF	2.25	113					275	388
55	Whistle Vent	1	EA	1,200	1,200					50	1,250
56	High Level Valve	1	EA	850	850					30	880
57	Emergency Vent	1	EA	250	250					38	288
58	Gauging Hatch	1	EA	100	100					25	125
59	Water Draw Barrel Pump	1	EA	300	300					63	363
60	Overfill Prevention Containment	1	EA	100	100					25	125
61	1" Piping	20	LF	5.00	100					25	125
62	Day Tank	1	LS	10,000	10,000						10,000
63	Area Light	1	EA	1,000	1,000					_	1,000
Barg	e Off-Loading Piping & Materials .										37,537
	3" Sch 80 Barge Off-Loading	1260		20	25,200					6,426	31,626
	Barge Off-Loading Coating	1260		3	3,591						3,591
	3" Elbows Sch 80	10		15	155					33	187
	3" Ball Valve	2		346	693					45	738
68	3" Check Valve	1		315	315					15	330
69	Timber Pipe Supports (3" + 2")	42		8	336					231	567
70	Drip Box	199	LB	2	398					100	498
				Subtotals	421,299			142,000	22,000	90,902	676,200
								Cont	ingency @	15%	101,430
									Construct	tion Total:	777,631
MIS	CELLANEOUS COSTS										
71	Design Costs										48,000
72	Project Insurance										5,055
73	Site Control Legal Work										5,000
74	Construction Management Allowar	nce									50,000
75	Grant Audit										4,000
76	Fire Marshal Review Fee										5,246
									Miscellane	ous Total:	117,301
TOTAL CONSOLIDATED TANK FARM BUDGET COST =									894,931		

BASIS FOR BUDGET COST ESTIMATE

- 1 * MATERIAL UNIT COSTS INCLUDE LABOR WHERE NO LABOR IS SHOWN.
- 2 ** MATERIAL FREIGHT COST CALCULATED AT \$0.50/LB EACH WAY FROM FROM ANCHORAGE TO TWIN HILLS.
- 3 *** LABOR MANDAY COST BASED ON 2 MONTH PROJECT DURATION WITH 10 HOUR DAY.
- 4 ALL EQUIPMENT IS LOCAL THVC OWNED.
- 5 NO COSTS FOR THE FOLLOWING ITEMS ARE INCLUDED IN THIS ESTIMATE

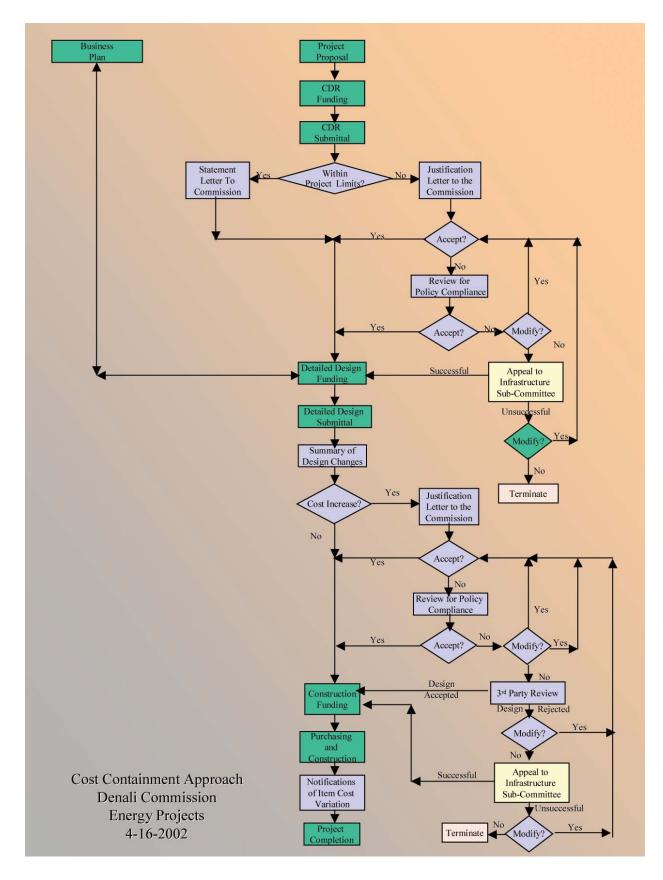
Costs associated with remediation of existing sites

Costs associated with ROW acquisition

Costs associated with operation and maintenance of fuel haul trucks and related systems

Costs associated with decommissioning and disposal of existing tanks







Appendix E 1

An abbreviated format of Denali Commission Policies is included in this appendix for reference. Complete text contained within these policies can be viewed on the web at www.denali.gov by clicking on Policies.

PRIVATE ENTERPRISE POLICY (April 2003), Bulk Fuel Storage

The developer of any bulk fuel storage consolidation project funded in whole or in part by Denali Commission funds will consult with all retail fuel suppliers within a community in the course of developing the project's conceptual design to ensure that their interests are understood and, to the extent feasible, dealt with in the course of conceptual design.

The existing market share balance among retail fuel suppliers within a community may be significantly altered as a result of a Denali Commission funding, only if all of the affected retail fuel suppliers currently operating in the community agree to it, or if such alteration is deemed necessary to facilitate competitive conditions in the community. For each type of fuel, the existing market share for a retail fuel supplier is defined as that supplier's existing in-service storage capacity as a percentage of the total gallons of existing in-service storage capacity for all retail fuel suppliers in the community.

Where multiple retail fuel suppliers are involved in a project, comparable levels of investment in project costs (based on market share) will be sought from each participating retail fuel supplier in the community, whether public or private.

Denali Commission funds may be used to upgrade or replace fuel storage facilities owned by private sector retail fuel suppliers if there is determined to be significant public benefit. However, to ensure that long term project benefits flow through to the public, such new or improved fuel storage and dispensing facilities will generally be owned by a local government entity which may lease the facilities to the private sector fuel supplier at a nominal cost or contract with the private sector fuel supplier for facility operation. The term of such lease or contract will be for the life of the assets, and is not transferable as an asset of the leaseholder without express written approval of the Denali Commission or its successor agency.

Facilities funded in whole or in part by the Denali Commission may not be sold, subleased, or interest otherwise assigned without the express approval of the Denali Commission or its successor agency.

ENERGY PROJECT DESIGN CAPACITY POLICY (April 2002)

1. The design capacity for bulk fuel projects shall be based on the projected village fuel storage requirements for not less than five nor more than ten years.



- 2. Where feasible, the design layout should allow space for future expansion of capacity to meet the anticipated requirements for at least twenty years.
- 3. The rate of change of population increase or decrease over the past ten years and population projections by village leaders, state agencies and others shall be taken into consideration.
- 4. Historical power production and consumption data shall be taken into consideration, including the most recent data of the Power Cost Equalization Program and the rate of change over time.
- 5. Designers shall distinguish between useable capacity and shell capacity in their design documents for bulk fuel projects. Typically, bulk tank useable capacity is 90% of shell capacity and dispensing tank useable capacity is 85% of shell capacity.
- 6. Where fuel delivery is by barge, thirteen months of storage capacity is recommended, depending on local conditions and freight logistics. Where fuel delivery is by air, two to three months of storage capacity is recommended, depending on local conditions and freight logistics. If the design includes both barge and airport headers, village input and anticipated fuel costs shall be included in the determination of tank farm capacity.
- 7. Designers shall take into account seasonal variations in fuel consumption.
- 8. Infrastructure development projects may impact storage capacity requirements by increasing fuel and electric energy consumption. Designers shall investigate current and anticipated projects by interviewing village leaders, reviewing the Department of Community and Economic Development Grants Database, and contacting other agencies such as Village Safe Water, Alaska Energy Authority, Alaska Native Tribal Health Consortium, Department of Transportation and Public Facilities, the local school district, etc. Where an adopted comprehensive community development plan exists, that plan shall be taken into account in forecasting the design capacity of facilities.
- 9. Project managers and/or designers are to explain the disadvantages of excess tank farm storage capacity to participants, such as accelerated corrosion in unused tanks, and increased costs for capital renewal and replacement, insurance, operations and maintenance. These additional costs must be factored into the business plan cost tables and will result in a per-gallon cost increase for project participants.

BULK FUEL PIPELINES & DISPENSERS POLICY (April 2002)

1. The designer is to consult with the community's fuel suppliers and identify and install the most cost effective solution (capital and operating) for receiving and transporting

3



- bulk fuel supplies within a village that will meet all applicable safety codes and regulatory requirements.
- 2. The standard is one header (marine or airport) as needed, and one fill pipeline for each product (diesel, gasoline, or aviation gasoline) per village, and to employ a joint use agreement among the users of the fill pipeline. Alternatives may be considered if it can be demonstrated that such alternatives can be installed and maintained at a lower cost than the standard.
- 3. The standard is to install separate distribution pipelines to each of the largest fuel consumers (a large consumer is defined as using in excess of 10,000 gallons per year) in the village, such as the school, water plant and power plant. Alternatives such as a tanker truck in lieu of a pipeline, or distributed bulk fuel tank farms (locating the power plant's bulk fuel storage at the power plant, the school's heating fuel at the school, etc.) in lieu of a centralized co-located tank farm may be considered if it can be demonstrated that such alternatives can be installed and maintained at a lower cost than the standard.
- 4. The standard is to install a single dispenser for each product for each project participant retailer at the bulk fuel plant. Alternatives may be considered if it can be demonstrated that such alternatives can be installed and maintained at a lower cost than the standard.
- 5. A participant may elect any alternative that will meet code and regulatory requirements, provided the participant pays the increased cost above the standard.

COST CONTAINMENT FOR ENERGY PROJECTS POLICY (Revised April 2002)

- 1. Cost Effective Designs. Cost containment requires that designs provide costeffective solutions for the needs of Alaskan communities. Capacity and other design
 and site decisions should be based on a comprehensive community plan. Designs
 should be selected that address the identified needs in the most cost-effective manner
 feasible, considering operational and maintenance costs as well as construction costs
 to yield the lowest life cycle costs. This may mean implementing innovative
 technologies that provide real life cycle cost savings; or it may mean using very
 simple technologies that are sufficiently effective instead of more expensive
 approaches that increase costs without substantial benefit.
- 2. **Need Specific Designs.** Project cost containment dictates that designs directly provide real, substantial and quantifiable benefits addressing specific Alaskan community needs. Designs should not be expanded to address other needs or desires within the community, unless those increased costs are funded from another source or explicitly approved by the Commission. Similarly, designs should not be based on unrealistic or unsubstantiated estimates for increased demand (see Commission



Policy for Energy Design Capacity). Projects should not result in expenditures for items providing little or no real benefit, or that are outside the program goals. Design components need to be limited to items that address real, identified needs in a beneficial manner, and are not merely "convenience" items. Required components should not be "over-designed" for the sake of community convenience, nor based on unreasonable projections.

- 3. *Competitive Procurement*. Cost containment requires that products, labor, materials, transportation, services, and other items must be provided at fair and cost-competitive prices for best value considering all the Denali Commission goals.
- 4. *Effective Project Management*. Cost containment requires that actual construction activities be competently managed to minimize or eliminate costs associated with scheduling, vendor coordination, material delivery, efficient utilization of labor and similar items. This will result in minimizing or eliminating unexpected costs from delays or other issues.
- 5. *Maximization of Cost Benefit via Project Selection*. Part of cost containment is ensuring the greatest benefit for the cost. If a project exhibits abnormally high unit costs, even for valid reasons, the overall greatest benefit may be to fund projects with equally valid needs that can be completed for lower unit costs.

Project Cost Containment Procedures

The Denali Commission intends for its cost containment policy to minimize scheduling impacts and maximize the flexibility of their award partners while providing effective cost containment.

Projects for new construction or renovation projects shall be initiated through Conceptual Design Reports (CDRs). Denali Commission Policies define procedures for determining acceptable capacities for bulk storage projects. Existing capacity provides a baseline for evaluating the required capacities. The CDR needs to include information on three items to confirm that costs and capacities are not anomalously high.

- a. The CDR should compare proposed capacity with guidance in the Denali Commission Energy Project Design Capacity Policy.
- b. The CDR must demonstrate compliance with the Commission's policy on design capacity. The CDR should compare existing versus proposed capacity to determine whether the capacity increase is 20% or less.
- c. The CDR should compare project unit costs to the below unit costs to determine if the project is less than or equal to the bench mark values. Unit costs are calculated as the total project budget divided by the total design

5



storage capacity. A larger capacity project should relate to the lower end of the cost range for each capacity level.

Capacity Benchmark Unit Costs:

0 - 50,000 gallons \$18.00 to \$14.00 per gallon 50,001 - 100,000 gallons \$14.00 to \$12.00 per gallon 100,001 - 200,000 gallons \$12.00 to \$9.50 per gallon 200,001 - 300,000 gallons \$9.50 to \$8.50 per gallon 300,001 - 400,000 gallons \$8.50 to \$7.50 per gallon 400,001 - 500,000 gallons \$7.50 to \$6.50 per gallon Greater than 500,000 gallons \$6.50 to \$2.50 per gallon

INVESTMENT POLICY (April 2004)

General Policy

Commission investments are directed by federal law, by the Commission's Guiding Principles, and by specific allocation decisions made by the Commission. Infrastructure needs of rural Alaska are enormous compared to available funding; thus, it is imperative that each dollar be invested in a way that will maximize the sustainable long term benefits to Alaskans. The Commission will promote investment in infrastructure where the promise of sustainability (facility and services) can reasonably be demonstrated both now and in the future. Infrastructure sustainability can be enhanced by adapting available technology and appropriately sizing facilities to meet the particular needs and circumstances of communities.

Factors which will influence investment decisions:

- 1. *Imminent environmental threats.* Facilities will be placed so as to be protected from imminent environmental threats such as flooding and erosion.
- 2. *Priority to be placed on needs of existing communities.* The Commission will give priority to the critical infrastructure needs of existing communities.
- 3. **Regional support.** The Commission recognizes that borough and local governments promote equity among Alaskans, and that the existence of a state-chartered government increases the probability that basic infrastructure and services provided with Denali Commission funds will be sustained over the long term. Consistency with a regionally approved plan is a factor lending strength to investing in a particular project.
- 4. **Proximity/access to existing services and/or facilities.** In determining the need for a new facility, a careful evaluation of existing services will be performed. Where two



- or more communities in close proximity to one another can be adequately and more cost effectively served by a single facility, that option will be selected.
- 5. *Renovation versus new construction.* Where existing facilities can be renovated or expanded to adequately meet community needs at significantly lower life-cycle costs than new construction, that option will be favored.
- 6. *Population trends.* Infrastructure will be sized to meet needs that can reasonably be projected over the design life of the project.
- 7. *Affordability*. The Commission will evaluate proponents' capacities to afford the life-cycle costs associated with sustaining proposed services and/or facilities, either through user fees, industry support, government transfer payments or grants from private entities.
- 8. **Per capita investment.** While there are many factors which may explain extreme variations in per capita investment in communities, the Commission will compile and review this data to ensure that there is reasonable equity in the distribution of funds across all rural Alaska communities.

CRITERIA FOR SUSTAINABILITY POLICY, BULK FUEL FACILITIES (April 2002)

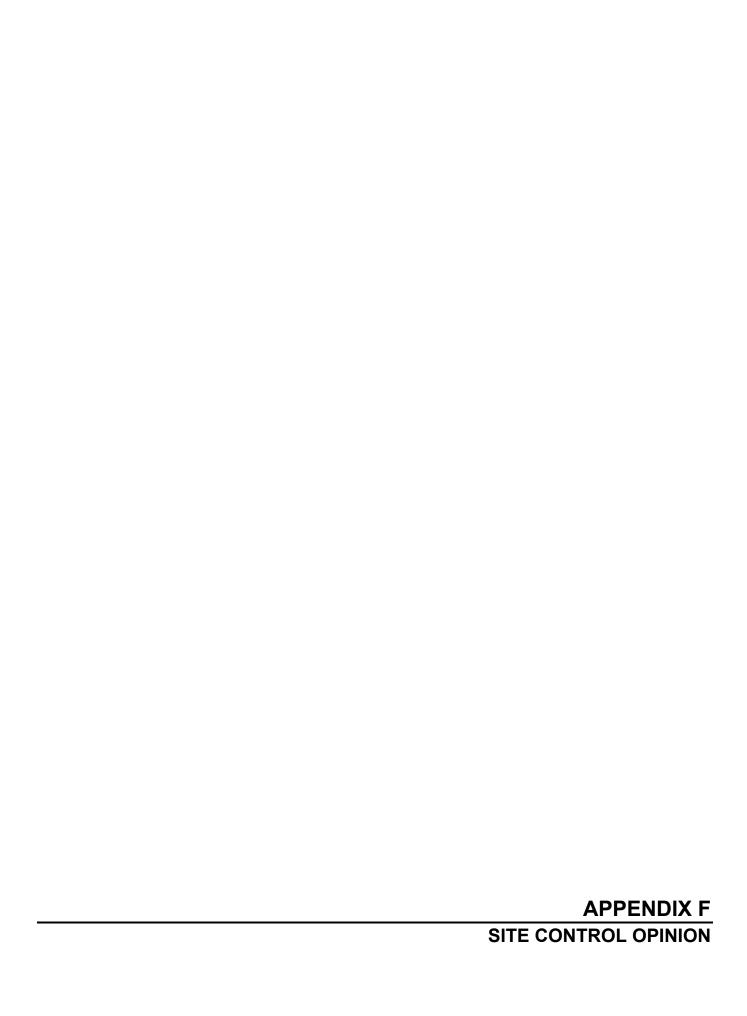
- 1. The bulk fuel storage facility must be substantial with an approved business and work plan, where adequate revenue will be available to cover all expenses and provide for renewal and replacement of plant. A renewal and replacement fund must be established to cover the projected costs of major repairs, renovations, renewals, and replacement of major plant components.
- 2. The bulk fuel storage facility must be in compliance with the laws and regulations that govern its operation.
- 3. Adequate preventive and scheduled maintenance must be provided, facility inspections and leak tests conducted, and the facility is kept in good condition and repair.
- 4. The Primary Owner must maintain separate accounts for the tank farm operation and arranges for annual financial audits of these accounts.
- 5. The Primary Owner cannot be in default with respect to any of its financial obligations, including debts, taxes, or other established liabilities.
- 6. Fuel surcharges and other means of generating revenue must be in place for tank farm operations payable by each tank farm occupant based on occupant's use of the facility.



- 7. Adequate business insurance must be in place that covers all significant risks.
- 8. A credible business and work plan for the facility must be prepared or updated no less than once every five years.
- 9. Formal agreements must be in place between the Primary Owner and any Secondary Owners that provide for the proper operating procedures and necessary maintenance.



8



Site Control Opinion Twin Hills Bulk Fuel System Upgrade Project

As requested, I have reviewed the land status for the proposed Twin Hills bulk fuel system upgrade project. The site locations are based on a conceptual drawing (fig. 1) provided by LCMF dated 8/7/08.

Land Status Summary

Bureau of Land Management and the State Recording Office on line records were researched. The on line community profile maps prepared by the State Department of Community, Commerce and Economic Development were reviewed. The Federal Townsite Trustee tract book for the Twin Hills townsite was also reviewed.

The proposed upgrade project includes a proposed Twin Hills fuel tank farm, school marine header, marine header pipeline, school fuel tank and washeteria fuel tank.

The Twin Hills fuel tank farm, the school marine header, and a portion of the pipeline are located with Tract B, U.S. Survey 5580, Twin Hills Townsite. Tract B was conveyed to the Village of Twin Hills on June 7, 1991, by the Federal Townsite Trustee. A copy of the recorded deed is attached.

From the conceptual drawing it cannot be determined with certainty whether a portion of the pipeline is within the right of way for the Twin Hills Road or within Tract B as described above. Twin Hills Road is shown on the federal townsite survey and is, generally, considered to be a public right of way. Therefore, I believe the Village, as the local government, would have the authority to place the pipeline either within Tract B (which the Village owns) or within the public right of way for Twin Hills Road.

The school fuel tank is located within Block 11, Tract A, U.S. Survey 5580. This parcel was conveyed by the Federal Townsite Trustee to the State of Alaska on February 14, 1977. The State issued a quitclaim deed to the Southwest Regional School District on June 20, 1988. A copy of the recorded deed is attached.

The washeteria/water treatment plant appears from the community profile map, as well as the conceptual drawing, to be located on Lot 9, Block 2, U.S. Survey 5580. Title to this lot was issued to Ferdinand and Nancy Sharp as a restricted townsite deed on September 9, 1977. A copy of the recorded deed is attached. Recording office records did not reveal any subsequent transfers. There cannot be any legal transfer of interest to a restricted Native townsite lot without approval of the Bureau of Indian Affairs.

Title to the adjoining Lot 10, Block 2, U.S. Survey 5580 was issued to the Village of Twin Hills by Federal Townsite Trustee deed dated June 7, 1991. A copy of the recorded deed is attached. Recording office records did not reveal any subsequent transfers. However, the community profile map does indicate there is a residential structure on Lot

not possible to determine with certainty whether the proposed fuel tank is proposed to be located on Lot 9 or Lot 10

Site control summary

The proposed Twin Hills fuel tank farm and school marine header and at least a portion of the pipeline appear to be on land owned by the Village of Twin Hills. A portion of the pipeline, depending on actual location, could be within the right of way for the Twin Hills Road. The school tank is located on land owned by the Southwest Regional School District. The proposed fuel tank for the washeteria/water treatment plant may be located on Lot 9 or Lot 10, Block 2, USS 5580. Lot 9 appears, from available records, to be privately owned even though the washeteria/water treatment plant is located on this lot. Lot 10 is apparently still owned by the Village according to recorded documents that are available. It is possible the Village has transferred the property or at least given permission for residential occupancy. This is based on the observation that the community profile map depicts a residential structure on Lot 10. Ownership should be verified locally if possible.

<u>Disclaimer:</u> This site control opinion does not purport to insure, warrant or certify title. The research of the Bristol Bay Recorders Office records was limited to a review of the computerized files. If there were any unrecorded transactions involving any of the land described above, such transactions would not be included in this research. The opinion is the result of a limited research effort as described above.

Prepared by

Rick Elliott Land Consultant for LCMF, LLC March 1, 2009

Rick Elliott

Attachments: a/s

AFTER RECORDING PLEASE FORWARD TO THE GRANTEE.

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT ALASKA STATE OFFICE - ANCHORAGE, AK

Bristol Bay Recording District

TRUSTEE DEED

THIS INDENTURE, made this 7th day of June, in the year of our Lord one thousand nine hundred and ninety-one, by and between Gail Acheson, of the Bureau of Land Management, 222 W. 7th Avenue, #13, Anchorage, Alaska. 99513-7599, as trustee for the townsite of Twin Hills, U.S. Survey Number 5580, in the State of Alaska, party of the first part, and The Village of Twin Hills, c/o Twin Hills Village Council, General Delivery, Twin Hills, Alaska, 99576, party of the second part.

WITNESSETH, That said party of the first part, as such trustee, by virtue of the power vested in and conferred upon her by the terms of section 11 of the Act of Congress approved March 3, 1891 (26 Stat. 1095), the Act of Congress approved May 25, 1926 (44 Stat. 629), as construed and applied in Aleknagik Natives Ltd. v. United States, Civ. No. A77-200, (D. Alaska, July 17, 1987) (order to convey), aff'd, Aleknagik Natives Ltd. v. United States, 886 F.2d 237 (9th Cir. 1989), and the regulations thereunder and the patent issued to her thereon, and in consideration of the sum of no dollars, the amount of the assessments upon the premises hereinafter described, the receipt of which is hereby acknowledged, by these presents does grant, convey and confirm unto the said party of the second part and its successors and assigns all the following lot, piece, and parcel of land situated in the townsite of Twin Hills, State of Alaska, described as follows, to-wit:

All of Tract "B", as shown on the official plat of U.S. Survey 5580, Alaska, Twin Hills Townsite, as accepted by the Chief, Division of Cadastral Survey, for the Director on August 6, 1975, and located within the Bristol Bay Recording District.

According to the official plat of survey of said townsite, subject to rights and reservations in said patent expressed. To have and to hold the same, together with all and singular the tenements, hereditaments, and appurtenances thereunto belonging or in anywise appertaining, its successors and assigns forever.

IN WITNESS WHEREOF said party of the first part, as trustee, has hereunto set her hand and seal on the day and year first above written.

In the presence of:

Shely Spulock

Gail Acheson, Townsite Trustee for the Townsite of Twin Hills,

State of Alaska

AK 2564-21 (Feb. 1984)

BOOK 37 PAGE 500
Bristol Bay Recording District

STATE OF ALASKA:

BE IT REMEMBERED, That on this 7th day of June, A.D. 1991, before me, a Notary Public, came Gail Acheson, to me personally known to be the Trustee of said townsite of Twin Hills, and the identical person described in, and whose name is affixed to, the foregoing conveyance as grantor, and she acknowledged the execution of the same to be her voluntary act and deed as such Trustee, for the uses and purposes therein mentioned.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my official seal on the day and year first written above.

SEAL S

was a second of the second of

Allan J. Breitzman, Notary Public for Alaska, residing at Anchorage, Alaska

My Commission expires December 17, 1992

AK 2564-21 (Feb. 1984)

ORIGINAL

MINUTES OF THE UNITED STATES DISTRICT COURT Bristol Bay DISTRICT OF ALASKA VS. UNITED STATES OF AMERICA, et al ALEKNAGIK NATIVES LIMITED, et al JAMES M. FITZGERALD THE HONORABLE A77-200 CIVIL CASE NO. Deputy Clerk Reporter Recorder LINDA CHRISTENSEN Janis Roller APPEARANCES: PLAINTIFF: JAMES BAMBERGER DEFENDANT: JACK ALLEN PROCEEDINGS: HEARING ON MOTION FOR RECONSIDERATION: At 9:03 a.m. court convened. Statements of Court and counsel heard. Plaintiff's motion for attorney fees - DENIED. At 9:24 a.m. Judge and counsel met in chambers. At 9:47 a.m. court reconvened. Court placed findings on the record re motion for reconsideration: Petitioners Port Graham and English Bay's motion for reconsideration GRANTED. IT IS ORDERED THAT the Townsite Trustee is directed to convey the remaining lands held in trust to petitioners for the benefit of the village inhabitants without restriction as to nationality or At 9:50 a.m. court adjourned.

CC: Vollintine
D. Bamberger (AK LEGAL SERV)
D. Smith (AUSA)
Reeves (BOGLE)

DATE: JULY 17, 1987

DEPUTY CLERK'S INITIALS:

C.F. No. 1

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Bristol Bay Recording District
QUITCLAIM DEED

THIS INDENTURE, made and entered into this 20th day of June, 1988, by and between the STATE OF ALASKA, GRANTOR, and the SOUTHWEST REGIONAL SCHOOL DISTRICT, P.O. Box 3196, Dillingham, Alaska 99576, its successors and assigns, GRANTEE.

WITNESSETH, that the Grantor, pursuant to A.S. 14.08.151(b), for and in consideration of the sum of TEN AND NO/100 DOLLARS, lawful money of the United States and other good and valuable consideration, the receipt whereof is hereby acknowledged, does hereby remise, release and quitclaim unto the Grantee, its successors and assigns forever, all right, title and interest in and to that lot, piece or parcel of land situated, lying and being in the Bristol Bay Recording District, described as follows:

BLOCK 11 IN TRACT A OF U.S. SURVEY NO. 5580, ALASKA, TWIN HILLS TOWNSITE, CONTAINING 8.05 ACRES, MORE OR LESS, ACCORDING TO THE SURVEY PLAT ACCEPTED BY THE UNITED STATES DEPARTMENT OF THE INTERIOR, BUREAU OF LAND MANAGEMENT IN WASHINGTON, D.C., ON FEBRUARY 11, 1963.

Subject to:

Valid existing rights, easements and reservations.

The condition that the Grantee shall use the above-described property for school or other public purposes only.

According to the official survey thereof save and except those restrictions appearing in the Federal Patent or other conveyance by which the Grantor acquired title and further, the State of Alaska, the Grantor, hereby expressly saves, excepts and reserves out of the grant hereby made, unto itself, its lessees, successors, and assigns forever, all oils, gases, coal, ores, minerals, fissionable materials, geothermal resources, and fossils of every name, kind or description, and which may be in or upon said lands above described, or any part thereof, and the right to explore the same for such oils, gases, coal, ores, minerals, fissionable materials, geothermal resources, and fossils, and it also hereby expressly saves and reserves out of the grant hereby made, unto itself, its lessees, successors and assigns forever, the right to enter by itself, its or their agents, attorneys, and servants upon said lands, or any part of parts thereof, at any and all times for the purpose of opening, developing, drilling and working mines or wells on these or other lands and taking out and removing therefrom all such oils, gases, coal, ores, minerals, fissionable materials, geothermal resources, and fossils, and to that end it further expressly reserves out of the grant hereby made, unto itself, its lessees, successors, and assigns forever, the right by its or their agents, servants and attorneys at any and all times to erect, construct, maintain, and use all such buildings, machinery, roads, pipelines, powerlines, and railroads, sink such shafts, drill such wells, remove such soil, and to remain on said lands or any part

QCD No. 1041 ADL No. 80574 BOOK 34 PAGE 83
Bristol Bay Recording District

thereof for the foregoing purposes and to occupy as much of said lands as may be necessary or convenient for such purposes hereby expressly reserving to itself, its lessees, successors, and assigns, as aforesaid, generally all rights and power in, to, and over said land, whether herein expressed or not, reasonably necessary or convenient to render beneficial and efficient the complete enjoyment of the property and rights hereby expressly reserved.

TOGETHER, with all the appurtenances and all the estate and rights of the Grantor to said premises.

TO HAVE AND TO HOLD the premises herein unto the Grantee, its successors and assigns forever.

IN WITNESS WHEREOF, THE STATE OF ALASKA, the Grantor, has caused these presents to be executed by the Director of the Division of Land and Water Management, Department of Natural Resources, on the day and year first above written.

RECORDED - FREED 13
Bristol Bay REC. DIST.

DATE 8-31 1988
TIME D. 446 P. M
Requested by Address Dankston.
MicCollings a 7035241

STATE OF ALASKA

)ss.

Third Judicial District

STATE OF ALASKA

)ss.

THIS IS TO CERTIFY that on the 20th day of June, 1988, appeared before me CAROL L. SHOBE, the person who has been lawfully delegated the authority of Gary G. Gustafson, the Director of the Division of Land and Water Management, Department of Natural Resources, State of Alaska, to execute the foregoing document; that she executed said document under such legal authority and with knowledge of its contents; and that such act was performed freely and voluntarily upon the premises and for the purposes stated therein.

WITNESS my hand and official seal the day and year in this certificate first above written.

Notary Public in and for the State Adask

My Commission Expires: _3

RETURN ORIGINAL TO:

W. Richard Fossey, Esq.
Bankston, McCollum & Fossey, P.C., 550 W. 7th Avenue, Suite 1800
Anchorage, Alaska 99501

QCD No. 1041 ADL No. 80574 Location Index: T. 13 S., R. 66 W., S.M. Section 3

Form 2560-7 (July 1970)

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT

NATIVE RESTRICTED TRUSTEE DEED

THIS INDENTURE, made this 9th day of September

hundred and seventy-sevenby and between

George E. M. Gustafson

as trustee for the townsite

Twin Hills

Twin Hills

, in the State of Alaska, party of the first part,

and Ferdinand Sharp and Nancy G. Sharp (Husband and Wife)

Alaska, part ies of the second part

WITNESSETH, That said party of the first part, as such trustee, by virtue of the power vested in and conferred upon him by the terms of section 11 of the Act of Congress approved March 3, 1891 (26 Stat. 1095), the Act of Congress approved May 25, 1926 (44 Stat. 629), and the regulations thereunder and the patent issued to him thereon, by these presents does gra-1, convey, and confirm unto the said part ies of the second part and their heirs and assigns all the following lot xxxx , piece xxxx , and parcel xxxx of land situate in the townsite of Twin Hills , State of Alaska, described as follows, to-wit: Lot Nine (9), Block Two (2),

, of

Tract "A", as shown on the official plat of U. S. Survey 5580, Twin Hills

Townsite, as accepted by the Chief, Division of Cadastral Survey, for the Director, on August 6, 1975 ...

Subject to the condition that the above-described land shall not be alienated or encumbered without the consent of the Secretary of the Interior, and shall not be subject to taxetion to levy and sale in satisfaction of debts, contracts, or liabilities, or to any claims of adverse occupancy or law of prescription, and subject to the further condition that there is reserved from the operation of this conveyence the land covered by the established streets and alleys extended upon and across the said tract.

According to the official plat of survey of said townsite, subject to rights and reservations in said patent expressed. To have and to hold the same, together with all and singular the tenements, hereditaments, and appurtenances thereunto belonging or in any wise apportaining.

their heirs, executors, administrators, and assigns forever.

IN WITNESS WHEREOF said party of the first part, as trustee, has bereunto set his hand and seal on the day and year first shove written.

SEAL George E. M. Gustafson Trustee for the townsite of Twin Hill . State of Alaska

STATE OF ALASKA:

HE IT REMEMBERED. That on this 9th day of

September

A.D. 1977 , before me, a Notary

Public, came

George E. M. Gustafson

, to me personally known to be the trustee

of said townsite of

Twin Hills, Alaska

, and the identical person described in, and

whose name is affixed to, the foregoing conveyance as grantor, and he acknowledged the execution of the same to be his voluntary act and deed as such trustee, for the uses and purposes therein mentioned.

IN TESTIMONY WITEREOF, I have hereunto subscribed my name and affixed my official seal on the day and wiitter

Yhrant) 1. [
Margares J. McDaniel Notary Public for Alaska, residing at Anchorage

. Alaska

My Commission expires February 23, 1981

Bristol Bay Recording Distric

AFTER RECORDING PLEASE FORWARD TO THE GRANTEE.

UNITED STATES DEPARTMENT OF THE INTERIOR BUREAU OF LAND MANAGEMENT ALASKA STATE OFFICE - ANCHORAGE, AK

TRUSTEE DEED

THIS INDENTURE, made this 7th day of June, in the year of our Lord one thousand nine hundred and ninety-one, by and between Gail Acheson, of the Bureau of Land Management, 222 W. 7th Avenue, #13, Anchorage, Alaska, 99513-7599, as trustee for the townsite of Twin Hills, U.S. Survey Number 5580, in the State of Alaska, party of the first part, and The Village of Twin Hills, c/o Twin Hills Village Council, General Delivery, Twin Hills, Alaska, 99576, party of the second part,

WITNESSETH, That said party of the first part, as such trustee, by virtue of the power vested in and conferred upon her by the terms of section 11 of the Act of Congress approved March 3, 1891 (26 Stat. 1095), the Act of Congress approved May 25, 1926 (44 Stat. 629), as construed and applied in Aleknarik Natives Ltd. v. United States, Civ. No. A77-200, (D. Alaska, July 17, 1987) (order to convey), aff'd, Aleknagik Natives Ltd. v. United States, 886 F.2d 237 (9th Cir. 1989), and the regulations thereunder and the patent issued to her thereon, and in consideration of the sum of no dollars, the amount of the assessments upon the premises hereinafter described, the receipt of which is hereby acknowledged, by these presents does grant, convey and confirm unto the said party of the second part and its successors and assigns all the following lot, piece, and parcel of land situated in the townsite of Twin Hills, State of Alaska, described as follows, to-wit:

Lots One (1), Two (2), Three (3), Four (4), Five (5), Ten (10), Eleven (11), Twelve (12), Thirteen (13), Fourteen (14), Fifteen (15) and Sixteen (16), Block Two (2), Tract "A", as shown on the official plat of U.S. Survey 5580, Alaska, Twin Hills Townsite. as accepted by the Chief, Division of Cadastral Survey, for the Director on August 6, 1975, and located within the Bristol Bay Recording District.

According to the official plat of survey of said townsite, subject to rights and reservations in said patent expressed. To have and to hold the same, together with all and singular the tenements, hereditaments, and appurtenances thereunto belonging or in anywise appertaining, its successors and assigns

IN WITNESS WHEREOF said party of the first part, as trustee, has hereunto set her hand and seal on the day and year first above written.

In the presence of:

Shirty Spulce Joseph McDowell

Gail Acheson, Townsite Trustee for the Townsite of Twin Hills, State of Alaska

AK 2564-21 (Feb. 1984)

Bristol Bay Recording District

STATE OF ALASKA:

BE IT REMEMBERED, That on this 7th day of June, A.D. 1991, before me, a Notary Public, came Gail Acheson, to me personally known to be the Trustee of said townsite of Twin Hills, and the identical person described in, and whose name is affixed to, the foregoing conveyance as grantor, and she acknowledged the execution of the same to be her voluntary act and deed as such Trustee, for the uses and purposes therein mentioned.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed my official seal on the day and year first written above.

[SEAL]

Allan J. Breitzman, Notary Public for Alaska, residing at Anchorage, Alaska

My Commission expires December 17, 1992

AK 2564-21 (Feb. 1984)

GENGINAL

BOOK PAGE 482

MINUTES OF THE UNITED STATES DISTRICT COURT

DISTRICT OF ALASKA
ALEKNAGIK NATIVES LIMITED, vs. UNITED STATES OF AMERICA, et al
THE HONORABLE JAMES M. FITZGERALD CASE NO. A77-200 CIVIL
Deputy Clerk Reporter Recorder
LINDA CHRISTENSEN X Janis Roller
APPEARANCES: PLAINTIFF: JAMES BAMBERGER DEFENDANT: JACK ALLEN
PROCEEDINGS: HEARING ON MOTION FOR RECONSIDERATION:
At 9:03 a.m. court convened.
Statements of Court and counsel heard.
Plaintiff's motion for attorney fees - DENIED.
At 9:24 a.m. Judge and counsel met in chambers.
At 9:47 a.m. court reconvened.
Court placed findings on the record re motion for reconsideration:
Petitioners Port Graham and English Bay's motion for reconsideration GRANTED.
IT IS ORDERED THAT the Townsite Trustee is directed to convey the remaining lands held in trust to petitioners for the benefit of the village inhabitants without restriction as to nationality or race.
At 9:50 a.m. court adjourned. RECORDED FILED 2 DC 570 Bayer, DIST.
Description (AK LEGAL SERV) Description (AUSA) Receives (BOGLE) DATE 6-12-910 TIME 2.02 M Requested by Address 474 BUW
DATE:JULY 17, 1987DEPUTY CLERK'S INITIALS:LC
C.F. No. 1

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